

## IN THE CLAIMS

1- 13. (Cancelled)

2 14. (Currently Amended) The process according to Claim 43 ~~29~~ for preparing compounds of the formula (I) wherein for olefins of the formula (II) the substituents R<sup>1</sup> to R<sup>4</sup> are each, independently of one another, hydrogen, alkyl, CN, COOH, COO-alkyl, COO-aryl, CO-alkyl, CO-aryl, O-alkyl, O-aryl, N-alkyl<sub>2</sub>, aryl, fluorine, chlorine, bromine, iodine, CHO, CF<sub>3</sub>, NHCO-alkyl, CONH<sub>2</sub>, CONH-alkyl, or NHCOO-alkyl.

3 15. (Currently Amended) The process according to Claim 43 ~~29~~ wherein diols of the formula (I) in which R<sup>1</sup> to R<sup>4</sup> are each, independently of one another, hydrogen, alkyl, CN, COOH, COO-alkyl, CO-alkyl, CO-aryl, O-alkyl, O-aryl, aryl, fluorine, chlorine, bromine, CHO, or NHCO-alkyl are prepared.

4 16. (Currently Amended) The process according to Claim 43 ~~29~~ wherein the oxidant is oxygen or a gas mixture comprising at least 15% by volume of oxygen.

5 17. (Cancelled)

5 18. (Currently Amended) The process according to Claim 43 ~~29~~ wherein the reaction proceeds at a temperature of from 20 to 200°C and a pressure of up to 200 bar.

6 19. (Cancelled)

6 20. (Previously Presented) A The process according to Claim 40 ~~29~~ wherein the amine is a tertiary amine.

7 21. (Previously Presented) A The process according to Claim 40 ~~29~~ wherein the amine is a bicyclic amine of the quinuclidine type.

8 22. (Currently Amended) The process according to Claim 43 ~~29~~ wherein a sulfonamide is added as a cocatalyst.

9 23. (Currently Amended) The process according to Claim 22 wherein the sulfonamide cocatalyst is a methylsulfonamide or and/or a carboxamide.

10 24. (Currently Amended) The process according to Claim 43 ~~29~~ wherein the osmium compounds OsO<sub>4</sub>, K<sub>2</sub>Os<sub>2</sub>(OH)<sub>4</sub>, Na<sub>2</sub>Os<sub>2</sub>(OH)<sub>4</sub>, Os<sub>3</sub>(CO)<sub>12</sub>, OsCl<sub>3</sub>,

$H_2OsCl_6$ ,  $[CF_3SO_3Os(NH_3)_5](O_3SCF_3)_2$ ,  $OsO_4$  on vinylpyridine, or  $Bu^tNOsO_3$  are used as catalysts or and/or catalyst precursors.

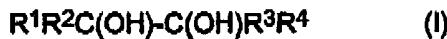
11 25. (Currently Amended) The process according to Claim 13 ~~29~~ wherein the manganese compounds  $MnO_2$ ,  $KMnO_4$ ,  $Ca(MnO_4)_2$ ,  $MnCl_3$ , or  $Mn(OAc)_3$  are used as catalysts or and/or catalyst precursors.

12 26. (Currently Amended) The process according to Claim 13 ~~29~~ wherein the ruthenium compounds  $RuCl_3$ ,  $RuO_4$ , or  $RuO_2$  are used as catalysts or and/or catalyst precursors.

13 27. (Currently Amended) The process according to Claim 13 ~~29~~ wherein the catalyst is used in amounts of from 0.2 to 0.00001 equivalents, based on the olefin.

14 28. (Currently Amended) The process according to Claim 13 ~~29~~ wherein the ratio of amine to metal is from 0.01:1 to 1 000:1.

1 29. (New) A process for the dihydroxylation of olefins using transition metal catalysts to obtain monofunctional, bifunctional, and/or polyfunctional 1,2-diols of the formula (I)



where

$R^1$  to  $R^4$  are each, independently of one another, hydrogen, alkyl, CN, COOH, COO-alkyl, COO-aryl, CO-alkyl, CO-aryl, O-alkyl, O-aryl, O-CO-aryl, O-CO-alkyl, OC<sub>2</sub>O-alkyl, N-alkyl<sub>2</sub>, NH-alkyl, N-aryl<sub>2</sub>, NH-aryl, NO, NO<sub>2</sub>, NOH, aryl, fluorine, chlorine, bromine, iodine, Si-alkyl<sub>3</sub>, CHO, SO<sub>3</sub>H, SO<sub>3</sub>-alkyl, SO<sub>2</sub>-alkyl, SO-alkyl, CF<sub>3</sub>, NHCO-alkyl, CONH<sub>2</sub>, CONH-alkyl, NHCOH, NHCOO-alkyl, CHCHCO<sub>2</sub>-alkyl, CHCHCO<sub>2</sub>H, PO-(aryl)<sub>2</sub>, PO(alkyl)<sub>2</sub>, PO<sub>3</sub>H<sub>2</sub>, or PO(O-alkyl)<sub>2</sub>, where alkyl is a linear, branched, or cyclic aliphatic organic group having from 1 to 18 carbon atoms and aryl is a 5-, 6-, or 7-membered aromatic ring containing from 4 to 14 carbon atoms and from 0 to 3 heteroatoms and is optionally fused, and where the alkyl or the aryl group optionally bears up to six substituents selected independently from the group consisting of hydrogen, alkyl, O-alkyl, OCO-alkyl, O-aryl, aryl, fluorine,

chlorine, bromine, iodine, OH, NO<sub>2</sub>, NO, Si-alkyl<sub>3</sub>, CN, COOH, CHO, SO<sub>3</sub>H, NH<sub>2</sub>, NH-alkyl, N-alkyl<sub>2</sub>, PO-alkyl<sub>2</sub>, SO<sub>2</sub>-alkyl, SO-alkyl, CF<sub>3</sub>, NHCO-alkyl, COO-alkyl, CONH<sub>2</sub>, CO-alkyl, NHCOH, NHCOO-alkyl, CO-aryl, COO-aryl, PO-aryl<sub>2</sub>, PO<sub>3</sub>H<sub>2</sub>, PO(O-alkyl)<sub>2</sub>, and SO<sub>3</sub>-alkyl, where alkyl and aryl are as defined above,

comprising reacting an olefin of the formula (II)



where R<sup>1</sup> to R<sup>4</sup> are defined as for formula (I),

with an oxidant comprising molecular oxygen or a gas mixture comprising molecular oxygen in the presence of an osmium, ruthenium, or manganese compound in water or a water-containing solvent mixture at a pH of from 7.5 to 13; and adding an amine to achieve improved selectivity.